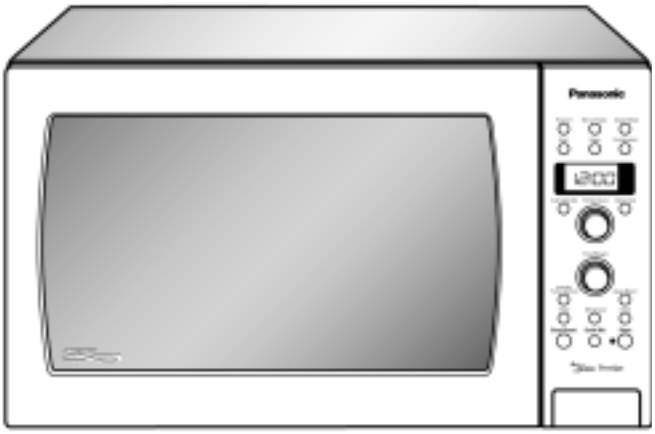
Order NO. MOD 0312271A1
E1

Service Manual

Microwave Oven

Simplified

NN-C994S



Please file and use this SIMPLIFIED manual together with the service manual Model NN-C980B (Order No. MOD0003234C1)

Specifications

		APH/CPH
Power Source:		120 V AC, 60 Hz
Power Requirement:	Microwave	1,500 W ---- APH 1,450 W ---- CPH
	Heater	1,500 W
Output:	Microwave	1,100 W: Full Power (IEC 705-88)
	Heater	1,400 W
Microwave Frequency:		2,450 MHz
Timer:		30 MIN (HIGH) / 1hour 30 min. / 9 hr. 59 min.
Outside Dimensions:		14-13/16" (H) X 23-7/8 "(W) X 19-5/16 "(D) 376 mm (H) X 412 mm (W) X 426 mm (D)
Over Cavity Dimensions:		9-1/2" (H) X 16-1/4 "(W) X 16-13/16 "(D) 242 mm (H) X 412 mm (W) X 426 mm (D)
Weight:		Approx. 22kg
PbF:		This Produt with PbF
Specitications subject to change without notice.		

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⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

DANGER OF HIGH VOLTAGE AND HIGH TEMPERATURE (HOT/LIVE) OF THE INVERTER POWER SUPPLY (U)

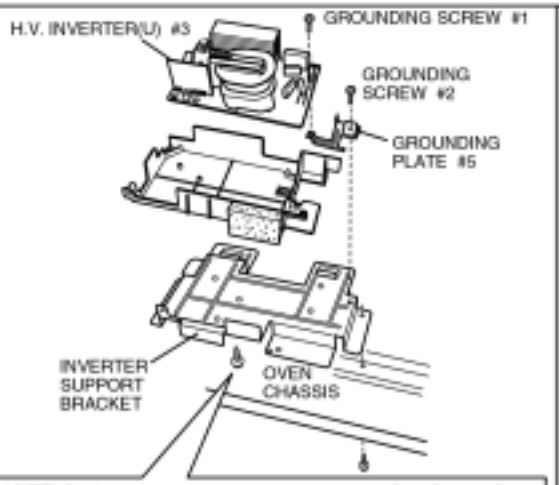
INVERTER WARNING

This Inverter board looks like a regular PCB. However, this PCB drivers the magnetron tubu with extremely high voltage and high current.

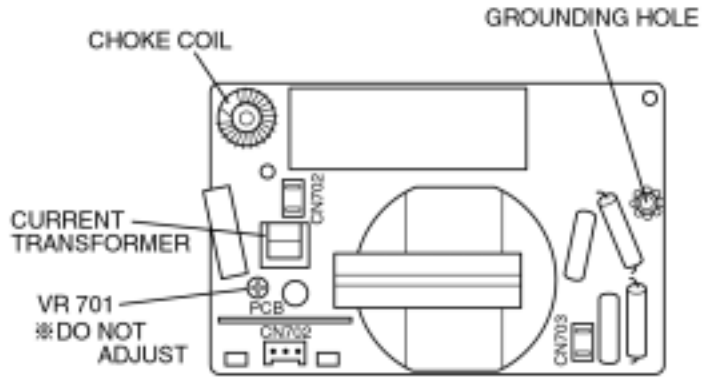
IT HAS: 1. Very high voltage and high current circuit. NEW HV
It functions the same as the high voltage transformer and high voltage capacitor in ordinary microwave ovens.
2. Aluminum heat sink is energized with very high voltage and high heat energy.
3. Very high voltage may remain in circuitry even when oven is off. High voltages may remain in the capacitors on the board.

DO NOT: * 1. Do not touch circuitry because it has very hot (high voltage) circuitry. Even when replacing board, extreme care should be taken to avoid possible electric shock hazards. High voltage may remain in circuit.
* 2. Do not touch aluminume heat sink because it is very hot high voltage and also very hot in high heat energy.
* 3. Do not try to repair Inverter PCB because it is very dangerous to repair it. Replace as whole High Voltage Inverter Circuit (U) unit and return fully re-packed with original shipping box and shipping materials. (USA)
* 4. Do not try to adjust or tamper with preset volume on the Inverter board because it is very dangerous to adjust without proper test equipment.
* 5. Do not test oven while Inverter grounding plate or screws are loose. It is very dangerous to operate H.V. Inverter Circuit (U) with loose mounting screws or if improperly grounded.

INVERTER POWER SUPPLY DIAGRAM



NOTE: Make sure to remove Inverter Holding Screw from base side when Removing Inverter PCB. Unless Inverter PCB will be broken. You may access the screw through the hole of Base Plate.



CAUTION

About lead free solder (PbF)

Distinction of PbF PCB: PCBs (manufactured) using lead free solder will have a PbF stamp on the PCB.

Caution: ● Pb free solder has a higher melting point than standard solder; Typically the melting point is 30 - 40°C higher. Please use a high temperature soldering iron. In case of the soldering iron with temperature control, please set it to 370 ± 10°C.
● Pb free solder will tend to splash when heated too high (about 600°C)

1 PRECATIONS

WARNING

1. This product should be serviced only by trained qualified personnel.
2. Though this product has been manufactured i compliance with:
   "Federal Performance Standard 21 CFR Subchapter J" (D.H.H.S.): U.S.A. models
   or "Radiation Emitting Devices Act" (Health and Welfare Canada): Canadian models
   It is very important all repairs should be made in accordance with procedures described in this manual to avoid being exposed to excessive microwave radiation.
3. Check for radiation leakage before and after every servicing according to the "procedure for measuring radiation leakege".
4. If the unit cannot be repaired on site, advise the customer not to use until unit be repaired.
5. Any serviceman who learns of any accident pertaining to microwave radiation leakage includng the oven operating with open door should immediately notify the appropriate address listed below and Center for Devices and Radiological Health, DHHS

IN U.S.A. (PASC)	Panasonic Services Company 50 Meadowland Parkway, Secaucus, New Jersey 07094 Attention: Technical Service Division. (201) 348-7000	IN PUERTO RICO (PSC)	PSC San Gabriel Industrial Park 65th Infantry Ave. Km. 9.5. Carolina, Puerto Rico 00985 (809) 750-4300
		IN CANADA (PCI)	Panasonic Canada Inc. 5770 Ambler Drive, Mississauga, Ontario, L4W2T3 (905) 624-5010

6. There are special components used in the microwave oven which are important for safety. These parts are marked with a ⚠ on the replacement parts list. list. It is essential that these critical parts should be replaced with manufacturer's specified parts to prevent microwave leakage, shock, fire, or other hazards. do not modify the original design.

PRECAUTIONS TO BE OBSERVED BEFORE AND DURING SERVICING TO ABOID POSSIBLE EXPOSURE TO EXCESSIVE MICROWAVE ENEERGY

(A) Do not operate or allow the oven to be operated with the door open.

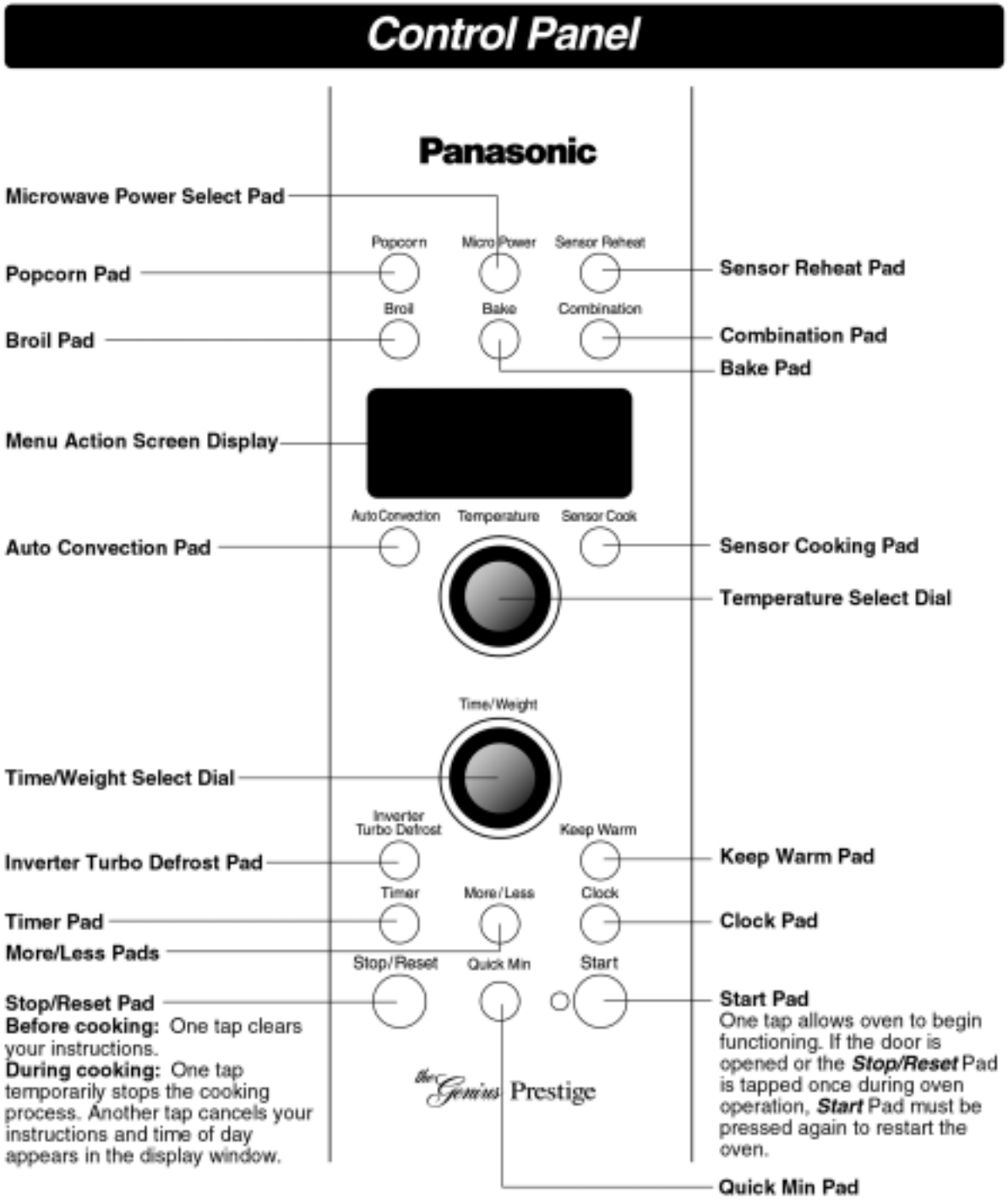
(b) Make the following safety checks on all ovens to be serviced before activating the magnetron or other microwave source, and make repairs as necessary:
   (1) Interlock operation
   (2) Proper door closing
   (3) Seal and sealing surfaces (arcing, wear, and other damage)
   (4) Damage to or loosening of hinges and latches
   (5) Evidence of dropping or abuse

(C) Before turning on microwave power for any service test or inspention within the microwave generating compartments, check the magnetron, waveguide or transmission line, and cavity for preper alignment, integrity and connections.

(D) Any defective or misadjusted components in the interlock, monitor, door seal, and microwave generation and transmission systems shall be repaired, replaced, or adjusted by procedurss described in the manual before the oven is released to the owner.

(E) A microwave leakage check to veify compliance with the Federal Performance Standard should be performed on each oven prior to release to the owner.

2 CONTROL PANEL



Cook Navigator:
The flashing indicator signals the next step.

Beep Sound:
When a pad is pressed correctly, a beep will be heard. If a pad is pressed and no beep is heard, the unit has not, or cannot, accept the instruction. The oven will beep twice between programmed stages. At the end of any complete program, the oven will also beep 5 times. When the preheating cycle is complete, the oven will beep 3 times.

3 OPERATION AND DEGITAL PROGRAMMER CIRCUIT TEST PROCEDURE

1. To Set Clock

OPERATION	SCROLL DISPLAY
1. Plug the power supply cord into wall outlet.	*REFER TO OPERATING INSTRUCTIONS BEFORE USE*
2. Press **Clock** button.	*--SET TIME* *TIME/WEIGHT*
3. Enter time of day (TOD) by turning **TIME/WEIGHT** knob.	*11:25* *--PRESS CLOCK*
4. Press **Clock** button. TOD has now been registered into the digital programmer circuit and will count up by minutes.	*11:25*

2. Time Cooking for Two Stage

OPERATION	SCROLL DISPLAY
1. Place a water load in the oven.	
2. Press **Micro Power** button once to set P10 power. (1st stage)	*--SET TIME* MICRO *TIME/WEIGHT* *P10*
3. Set for 10 seconds by turning **TIME/WEIGHT** knob.	*10* SEC *--PRESS START* MICRO *P10*
4. Press **Micro Power** pad 4 times to set P7 power. (2nd stage)	*--SET TIME* MICRO *TIME/WEIGHT* *P7*
5. Set for 1 minute by turning **TIME/WEIGHT** knob.	*1 00* MIN SEC *--PRESS START* MICRO *P7*
6. Press **Start** pad.	*10* SEC MICRO *P10*
7. When 1st stage cooking time has elapsed, oven automatically switches to 2nd stage cooking.	*1 00* MIN SEC MICRO *P7*
8. When 2nd stage cooking time has elapsed, oven beeps 5 times and shuts off.	*ENJOY YOUR MEAL*
9. Open the door	*Time of day or colon appears in the display.*

3. Inverter Turbo Defrost

OPERATION	SCROLL DISPLAY
1. Press **Inverter Turbo Defrost** button.	*INVERTER TURBO DEFROST* *--SET WEIGHT* MICRO *TIME/WEIGHT*
2. Set the weight for 3 pounds by turning **TIME/WEIGHT** knob.	*3.0Lb* *--PRESS START* MICRO
3. Press **Start** pad.	*18 34* MIN SEC MICRO

4. Bake Cooking with Preheat

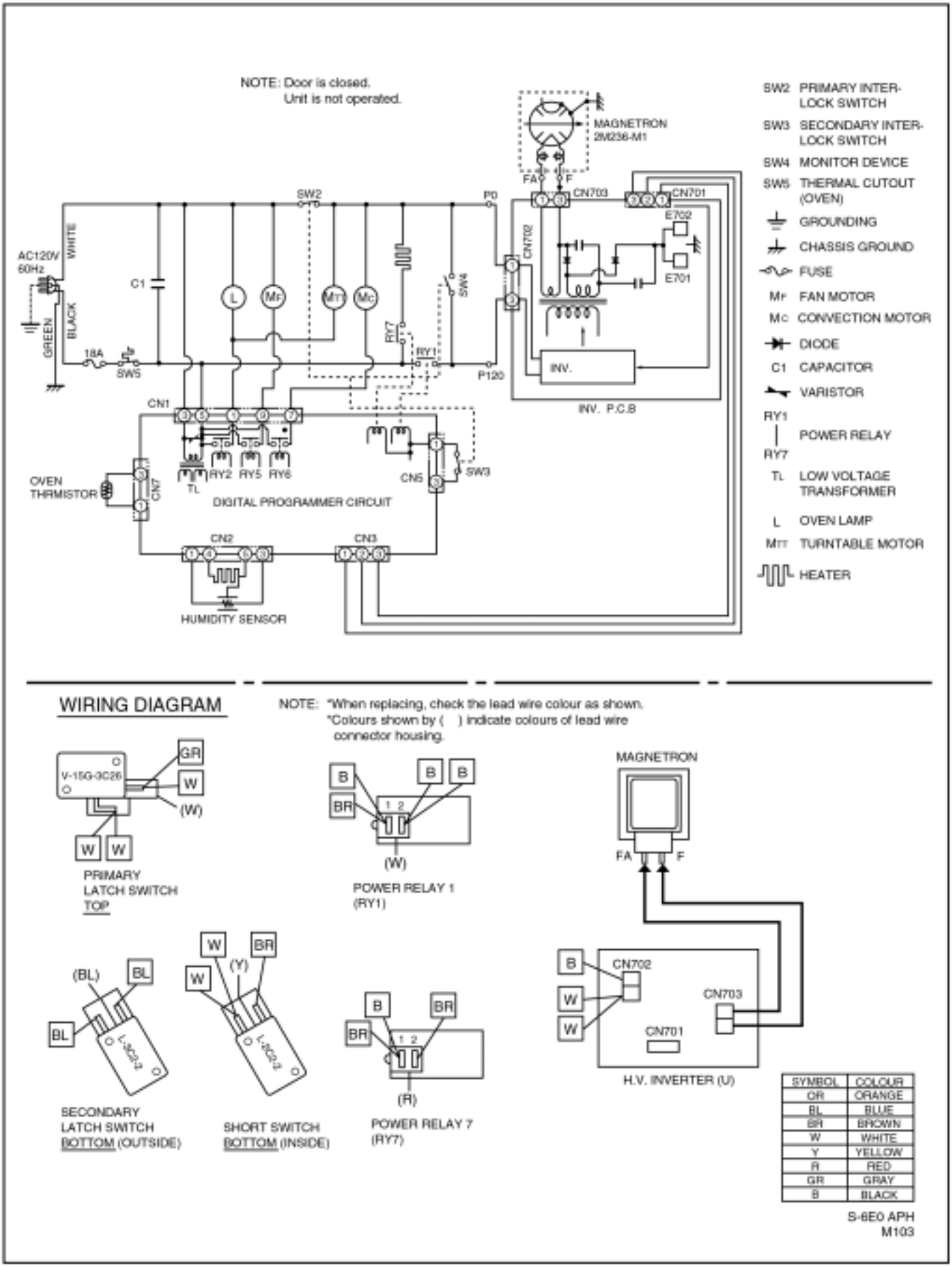
OPERATION	SCROLL DISPLAY
1. Press **Bake** button.	*BAKE-TEMPERATURE SET* BAKE *TEMPRATURE*
2. Set temprature by turning Temprature knob. EX: 225°F	*BAKE-PRESS START* BAKE *225°F* *START*
3. Press **Start** button.	*P* BAKE *225°F*
4. When preheating is completed, oven beeps 3 times.	*P END* BAKE *225°F*
5. After completion of preheating, be sure to open the door.	*BAKE* *0* SEC *--SET TIME* BAKE *225°F* *TIME/WEIGHT*
6. Close the door and set convection cooking time for 2 minutes.	*2 00* MIN SEC *--PRESS START* BAKE *225°F*
7. Press **Start** pad.	*2 00* MIN SEC BAKE *225°F*

5. Sensor Cooking

NOTE: Make sure that the outer panel is installed before Sensor Cooking Test, since Auto Sensor function does not operate properly without the outer panel.

OPERATION	SCROLL DISPLAY
1. Pour 150 – 15cc (4.5 –1/2 ozs) of room temperature water in a oven glassware or ceramic utensil, place the oven glassware or ceramic utensil in the center of the oven.	
2. Tap **Sensor Reheat** button.	*SENSOR REHEAT* *– –PRESS START* MICRO
3. Tap **Start** button.	MICRO *AUTO*
4. The steam sensor detects steam about 1.5 to 4 minutes after the Start Button is pressed. Sensor Brown Cooking (T1) automatically switshes to time cooking (T2). AUTO disappears with beep sounds and the remainder of cooking time appears in display window. **NOTE: Cooking time will vary depending on the water temperature, the shape of beaker or the power source voltage.**	*2 7* MIN SEC *1* MIN *1 2* SEC
5. When the balance of cooking time has elapsed, oven stops and beeps five times.	*ENJOY YOUR MEAL*

4 SCHEMATIC DIAGRAM (FOR USA)



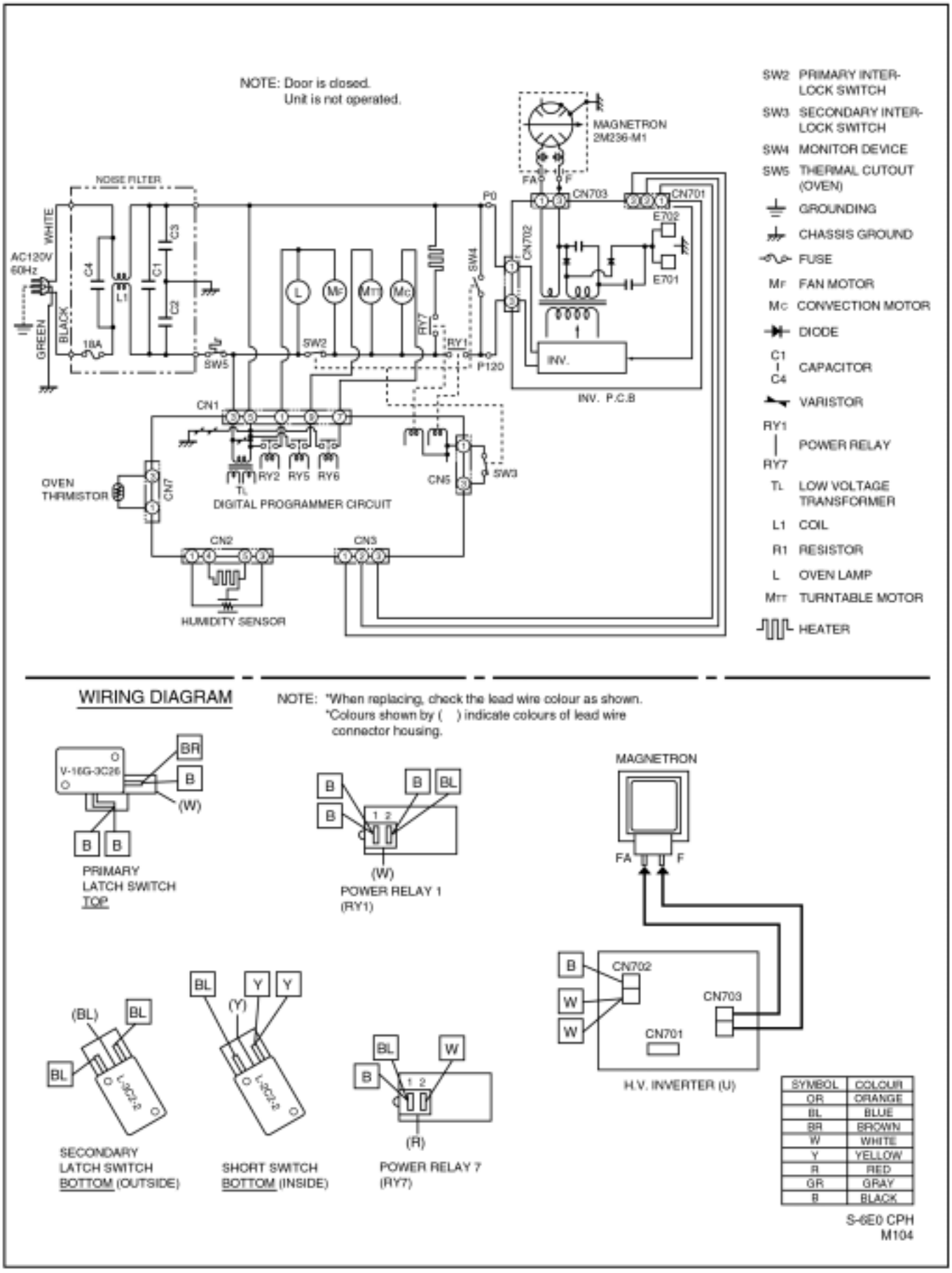
WIRING DIAGRAM

NOTE: *When replacing, check the lead wire colour as shown.
*Colours shown by ( ) indicate colours of lead wire connector housing.

SYMBOL	COLOUR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK

S-6E0 APH
M103

5 SCHEMATIC DIAGRAM (FOR CANADA)



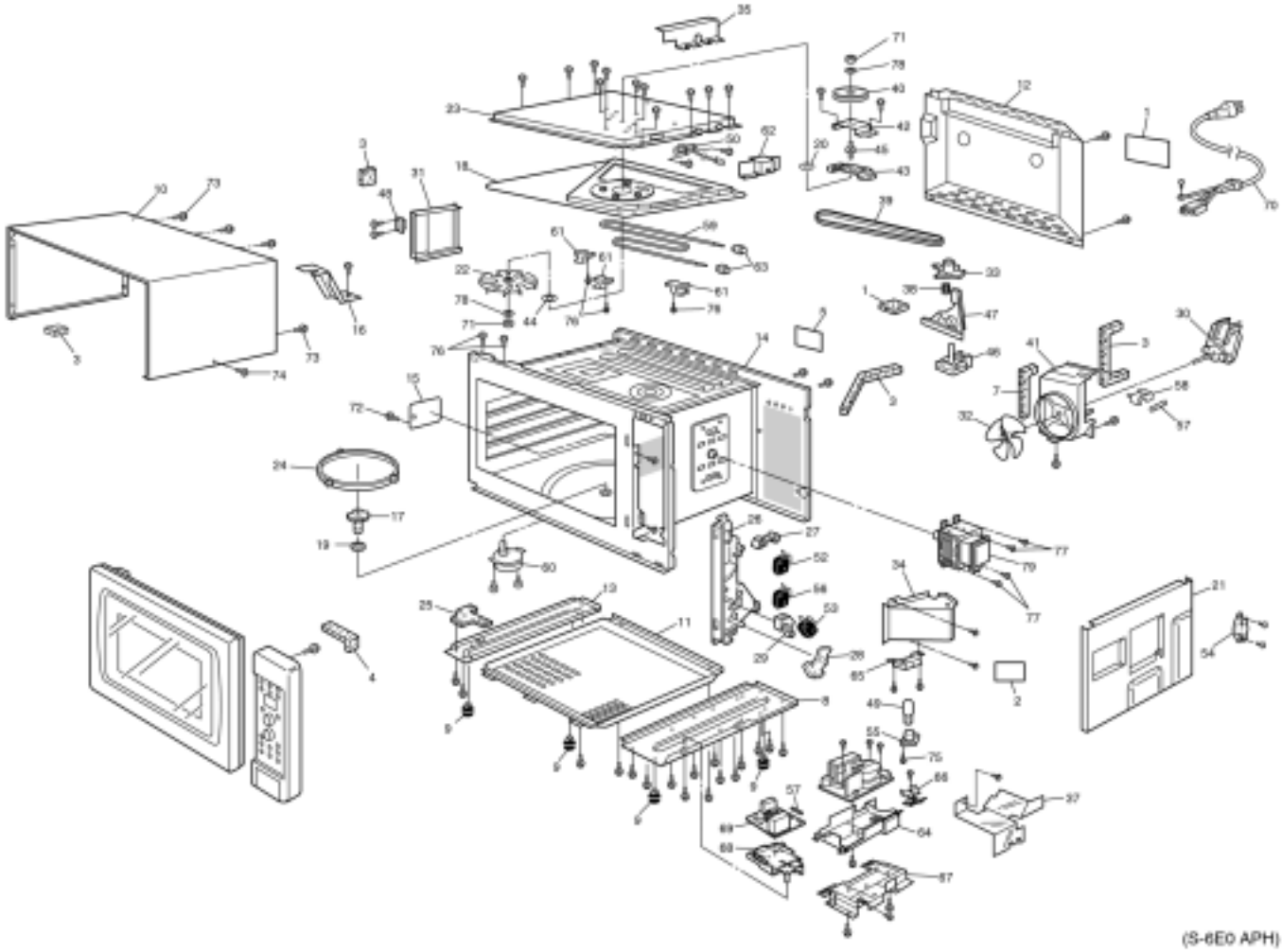
WIRING DIAGRAM

NOTE: *When replacing, check the lead wire colour as shown.
*Colours shown by ( ) indicate colours of lead wire connector housing.

SYMBOL	COLOUR
OR	ORANGE
BL	BLUE
BR	BROWN
W	WHITE
Y	YELLOW
R	RED
GR	GRAY
B	BLACK

S-6E0 CPH
M104

6 EXPLODED VIEW AND PARTS



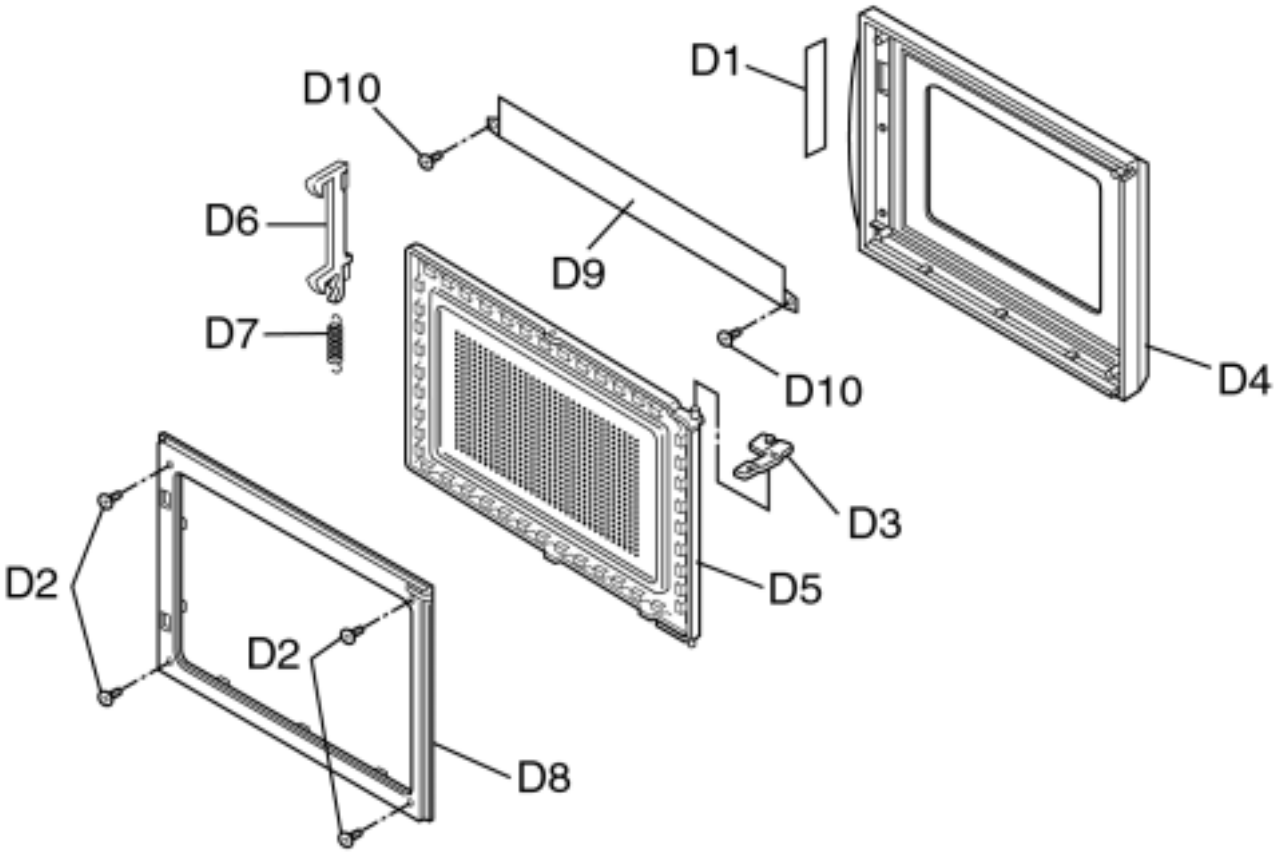
7 PARTS LIST

NOTE: When ordering replacement part(s), please use part number(s) shown in this parts list.
Important safety notice:
Components identified ⚠ by mark have s0pecial characteristics important for sefety.
When replacing any of these componets, use only manufacturer's specified parts.

Ref. No.	part No.	Part Name & Description	Pcs/Set	Remarks
1	A00066670AP	CAUTION LABEL	1	APH
1	A00066670CP	CAUTION LABEL	1	CPH
2	A00334X00AP	FUSE LABEL	1	APH
3	ANE000Z000AD	CSHION RUBBER A	1	
4	ANE092100BK	CSHION RUBBER C	1	
5	A00069770AP	CAUTION LABEL	1	APH
6	ANE0922000DD	CSHION RUBBER C	1	
7	ANE0924000AQ	CSHION RUBBER C	1	
8	A10014X00AP	BASE	1	
9	A10086210AP	RUBBR FOOT	4	
9	ANE1008-3WO	RUBBR FOOT	4	
10	A10096E00AP	CABINET BODY (U)	1	
11	A10265450AP	BASE C	1	
12	A10586670AP	BACK PANEL COVER A	1	
13	A11294X00AP	BASE B	1	
14	A200A4X00AP	OVEN	1	
15	A20554X00AP	COVER	1	
16	A20764X00AP	REINFORCE BRACKET C	1	
17	A21315870GP	PULLEY SHAFT	1	
18	A21446660QP	UPPER PANEL	1	
19	ANE2177-F80	WASHER	1	
20	A21776660QP	WASHER	1	
21	A22365450AP	RIGHT HEATER PANEL	1	
22	ANE22392L0AP	CIRCULATION FAN	1	
23	A22784X00AP	UPPER HEATER PANEL	1	
24	A290D4X70MN	ROLLER RING (U)	1	
25	A30076660QP	LOWER HINGE	1	⚠
26	A3020-1200	DOOR HOOK A	1	⚠
27	A3136-1200	HOOK SPACER A	1	
28	A31374650AP	HOOK SPACER B	1	
29	A31384650AP	HOOK SPACER C	1	
30	A400A4010AP	FAN MOTOR	1	24W
31	A400K5040AQ	EXHAUST GUIDE	1	
32	ANE40086W0AP	FAN	1	
33	A40085020AQ	FAN	1	
34	A40256660QP	AIR GUIDE A	1	
35	A40264X00AP	AIR GUIDE B	1	
36	ANE0924000GE	GUSHION RUBBER C	1	
37	A40474X00AP	AIR GUIDE E	1	
38	ANE4057-F50	SPRING	1	
39	A40606660QP	BELT	1	
40	A41325020AQ	PULLEY B	1	
41	A41445040PP	ORIFICE	1	APH
41	A41446660SN	ORIFICE	1	CPH
42	A41575450AP	FAN BRACKET A	1	
43	A41585450AP	FAN BRACKET B	1	
44	A41635020AQ	FAN SPACER C	1	
45	A400S6660QP	SHAFT (U)	1	
46	A41799190AP	HEATER FAN MOTOR	1	16W
47	A41804X00AP	HEATER FAN MOTOR BRACKET	1	
48	A601L4780AP	TEMP SENSOR	1	
49	ANE6030540AP	INCANDESCENT LAMP	1	125V 20W
50	A605A9790AP	TERMISTOR	1	
51	A606Y4T00AP	H. V. INVERTER	1	⚠
52	ANE6142-F60	MICROSWITCH	1	⚠ V-15G-3C26 PRIMARY LATCH SWITCH
53	A61425180AP	MICROSWITCH	1	⚠ L-3C2-2 SECONDARY LATCH SWITCH
54	A61456670AP	THERMAL CUTOUT	1	⚠
55	A61524000AP	SOCKET	1	⚠
56	A61785180AP	MICRO SWITCH	1	⚠ L-2C2-2 SHORT SWITCH

Ref. No.	part No.	Part Name & Description	Pcs/Set	Remarks
57	A62304X00AP	FUSE	1	⚠ 18A
58	A62314000AP	FUSE HOLDER	1	APH
59	A630G6660AP	HEATER A	1	
60	A63265850AP	TURNTABLE MOTOR	1	2.5W
61	A64175130AP	HEATER SUPPORT	3	
62	A64499770AP	SENSOR COVER	1	
63	ANE6501-C41	HEATER HOLDER	2	
64	A65854X00AP	P. C. B. HOLDER A	1	APH
64	A6585-1B10	P. C. B. HOLDER A	1	CPH
65	A66036000BP	OVENLAMP BRACKET	1	
66	A6662-1880	EARTH SPACER	1	
67	A67634X00AP	P. C. B. HOLDER B	1	
68	A67974X00CP	P. C. B. HOLDER C	1	CPH
69	A692Y4T00CP	NOISE FILTER (U)	1	CPH
70	A900C6240CP	AC CORD W/PLUG	1	⚠ 120V
71	XNG4EVS	NUT	2	M4
72	XST4+5VS	SCREW	1	4X5 (FOR COVER)
73	XTTANE4+12A	SCREW	2	(FOR CABINET BODY)
74	XTT4+8RDN	SCREW	1	4X8 (FOR CABINET BODY)
75	XTWANE3+10S4	SCREW	1	3X10 (FOR SOCKET)
76	XTWANE35+14N	SCREW	3	3.5X14 (FOR SUPPORT)
77	XTWANE4+10RU	SCREW	4	4X10 (FOR MAGNETRON)
78	XWS4VL	WASHER	2	M4
79	2M236-M1G	MAGNETRON	1	⚠ CPH
79	2M236-M1F1	MAGNETRON	1	⚠ APH
80	ANE000Z000AA	CUSHION RUBBER A	3	

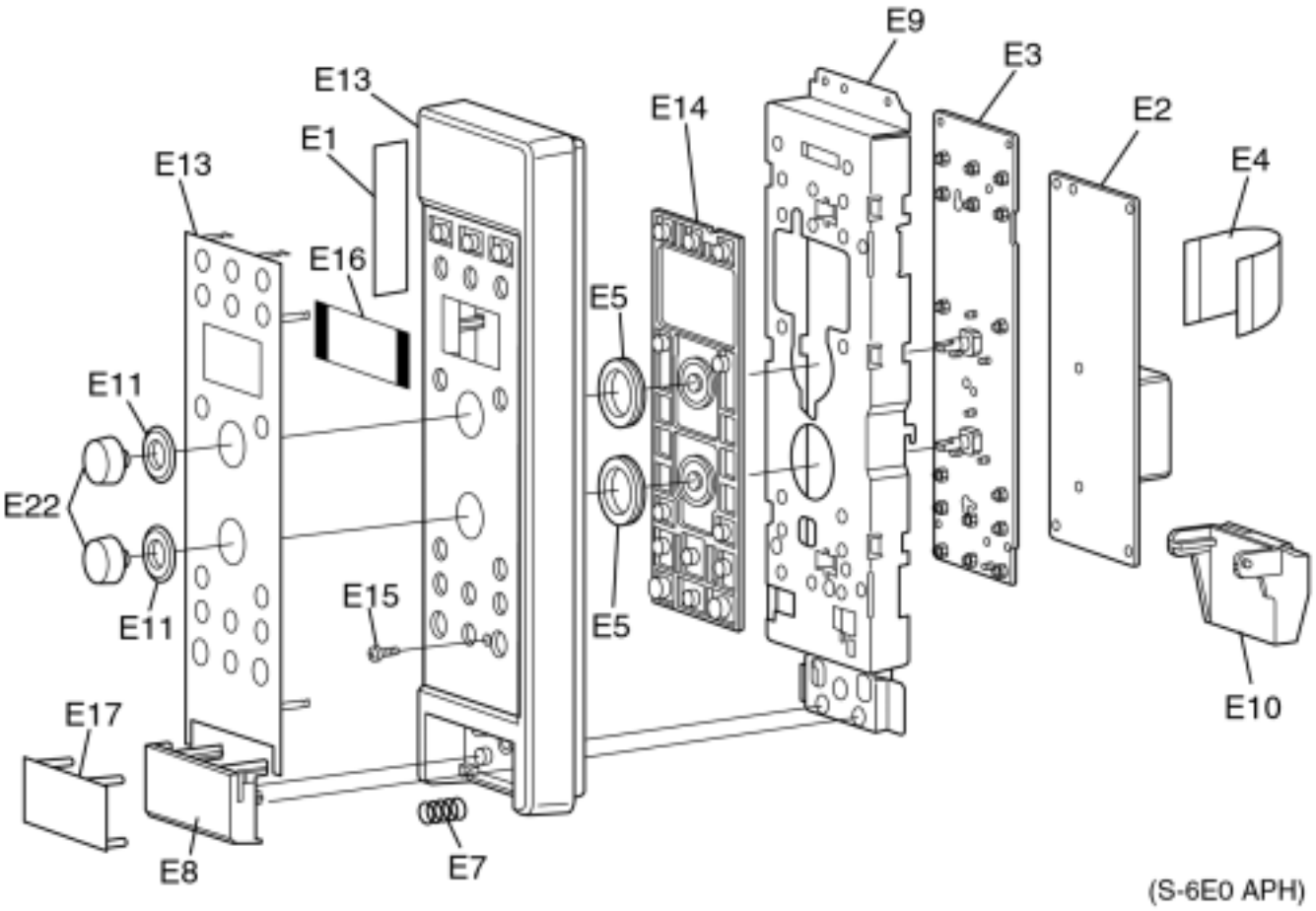
8 DOOR ASSEMBLY



Ref. No.	part No.	Part Name & Description	Pcs/Set	Remarks
D1	ANE0245X00AP	DHHS LABEL	1	APH
D1	A04115020CQ	CSA LABEL	1	CPH
D2	XTBANE4+12FK	SCREW	4	4X12
D3	A300B5450AP	UPPER HINGE	1	⚠
D4	A302A6E00AP	DOOR A (U)	1	⚠ NOTE 1
D5	A302K6660QP	DOOR E (U)	1	⚠
D6	A30186660QP	DOOR KEY A	1	
D7	A30214000AP	DOOR KEY SPRING	1	
D8	A30856660QP	DOOR C	1	⚠
D9	A33816E00AP	HEAT SHIELD PANER	1	
D10	XTW3+8Q	SCREW	2	3X8 (FOR D9)

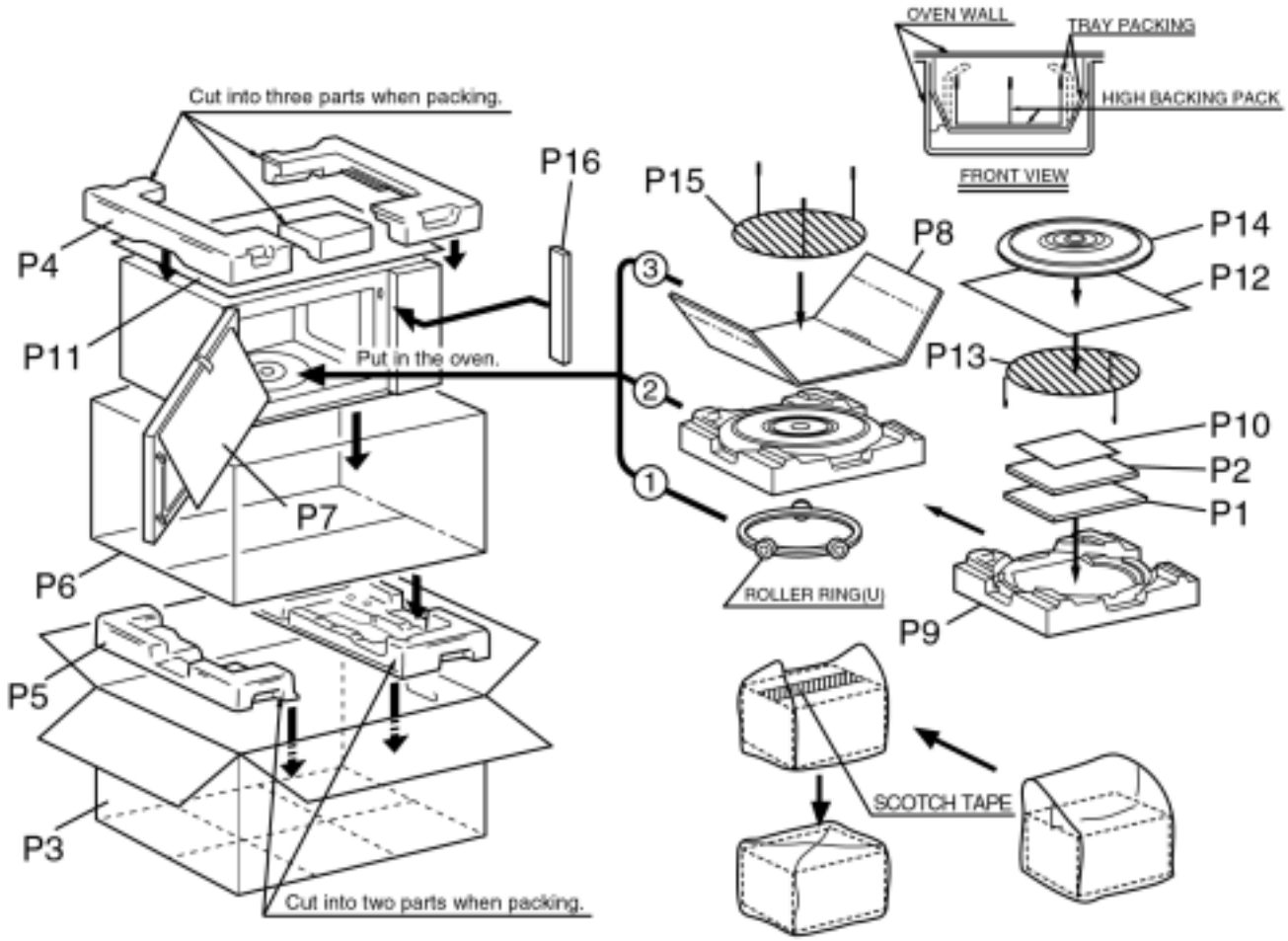
NOTE 1: Please order DHHS LABEL or CSA label together.

9 ESCUTCHE BASE ASSEMBLY



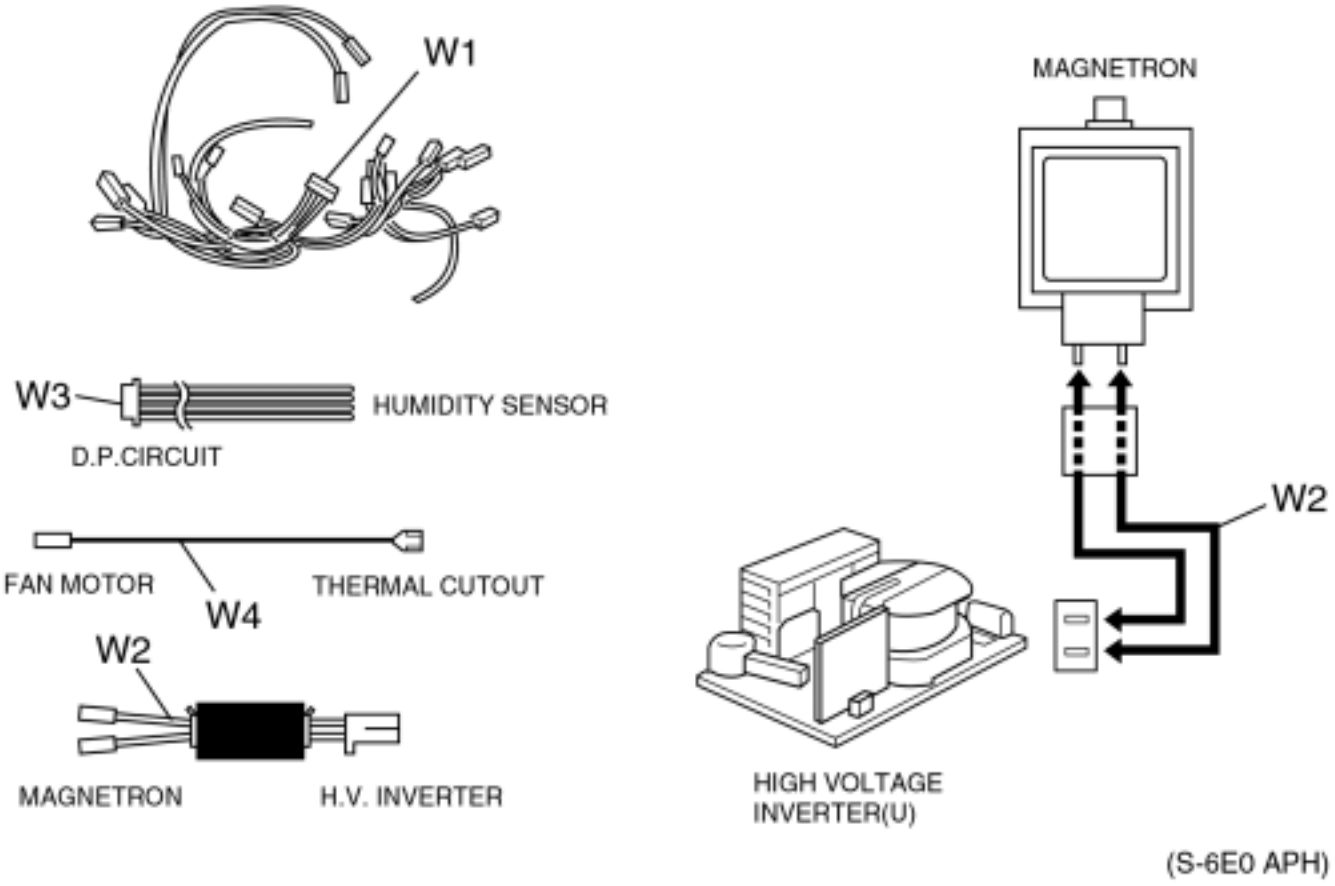
Ref. No.	part No.	Part Name & Description	Pcs/Set	Remarks
E1	A01576E00AP	NAME LABEL	1	NN-C994S APH
E2	A603Y6E00AP	PC BOARD D (U)	1	
E3	A605Q6E00AP	PC BOARD F (U)	1	APH W/COMPONET
E3	A605Q6E00CP	PC BOARD F (U)	1	CPH W/COMPONET
E4	A6616-1600	FLAT CABLE	1	
E5	A80096E00AP	INDICATOR A	1	
E6	A80206E00AP	TIMER KNOB	2	
E7	ANE80378A0AG	SPRING	1	
E8	A80726E00AP	DOOR OPENIG BUTTON	1	
E9	A81276E00AP	BACK PANEL	1	
E10	A82569770AP	DOOR OPENIG LEVER	1	
E11	A82876E00AP	SPACER A	2	
E12	A80346E00AP	ESCUTCHEON BASE	1	
E13	A80356E00AP	ESCUTCHEON SHEET	1	
E14	A80246E00AP	OPERATION BUTTON	1	

10 PACKING AND ACCESORIES



Ref. No.	part No.	Part Name & Description	Pcs/Set	Remarks
P1	A000B6E00AP	COOK BOOK	1	
P2	A00036E00AP	INSTRUCTION BOOK	1	APH
P2	A00036E00CP	INSTRUCTION BOOK	1	CPH
P3	A01026E00AP	PACKING CASE PAPER	1	APH
P3	A01026E00CP	PACKING CASE PAPER	1	CPH
P4	A01046670AP	UPPER FILLER	1	
P5	A01056670AP	LOWER FILLER	1	
P6	A01065130AP	VINYL COVER	1	
P7	ANE0107580AP	DOOR SHEET	1	
P8	A01086660QP	TRAY PACKING	1	
P9	A0113660QP	TRAY STYROL	1	
P10	ANE0169B60CP	SERVICE CENTER LIST	1	CPH
P11	ANE0192Z70BP	PACKING /TOP SHEET	1	
P12	ANE02072L0AP	STYROL SHEET	1	
P13	A060V4X00AP	HIGH BAKING RACK	1	
P14	A06014X70QP	COOKING TRAY	1	
P15	A060V4X00CP	HIGH BAKING RACK	1	CPH HIGH (135MM)
P16	A01456E00KP	DOOR SHEET B	1	

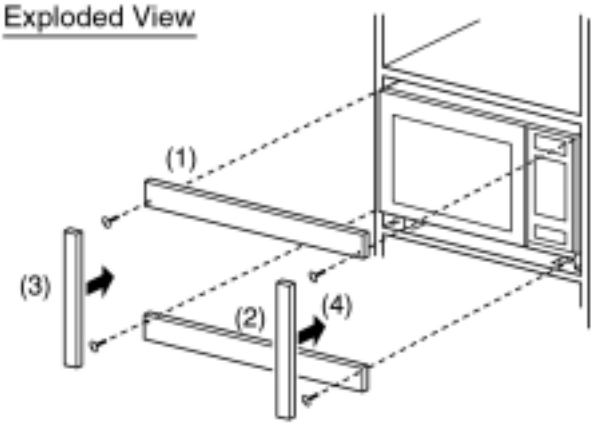
11 WIRING MATERIAL



Ref. No.	part No.	Part Name & Description	Pcs/Set	Remarks
W1	A030A4X00AP	LEAD WIRE HARNESS	1	APH
W1	A303A4X00CP	LEAD WIRE HARNESS	1	CPH
W2	A030E4X00AP	LEAD WIRE	1	APH
W2	A030E4X00CP	LEAD WIRE	1	CPH
W3	A03536660QP	LEAD WIRE	1	
W4	A03536670AP	LEAD WIRE	1	APH

PARTS LIST FOR MICROWAVE OVEN TRIM KITS

Exploded View



Trim Kit Model No. (Width)	Top and Bottom Strip Ref No:1.2	Pcs/ Set	Side Strip Ref No:3.4	Pcs/ Set	Colour
NN-TK903S (27")	A1603A950SAP	2	A1601A950SAP	2	METAL
NN-TK903B (27")	A1603A950AP	2	A1601A950AP	2	BLACK
NN-TK903W (27")	A1603A950HAP	2	A1601A950HAP	2	WHITE
NN-TK913S (30")	A1603A960SAP	2	A1601A960SAP	2	METAL
NN-TK913B (30")	A1603A960AP	2	A1601A960AP	2	BLACK
NN-TK913W (30")	A1603A960HAP	2	A1601A960HAP	2	WHITE

NOTE: The top and bottom strips have the same part number and the left and right side strips also have the same part number. These parts will be supplied on one piece per one part number.